

# The United States Environmental Protection Agency: National Oil and Hazardous Substances Pollution Contingency Plan, Subpart J Product Schedule (40 CFR 300.900)

William J. Nichols  
U.S. Environmental Protection Agency  
Oil Program Center (5203G)  
Crystal Gateway # 1  
1235 Jefferson-Davis Hwy.  
Arlington, Virginia 22202

## ABSTRACT

The United States Environmental Protection Agency manages the National Oil and Hazardous Substances Pollution Contingency Plan Final Rule, Subpart J Product Schedule (40 Code of Federal Regulations Part 300.900) which list dispersants, surface washing agents, bioremediation agents, surface collecting agents, and miscellaneous oil spill control agents that may be used in response to oil spills on land and on or near waters of the U.S., depending on the product and its proper application. Over the last few years alternative oil spill response methods have been gaining in acceptance and use in the field among first responders, industry, state and federal agencies, Congress, and the entire oil spill response community. EPA sets policy and guidance for the proper use and authority to use these products. Manufacturers and vendors of these products have become more aware of this acceptance evidenced by the frequency that EPA is contacted to provide information on the listing process and EPA policy regarding their use. The number of applications to add new products to the Subpart J Product Schedule have increased over the last year. Subpart J is very prescriptive and specific in directing manufacturers to perform the proper test within the proper protocols, yet many applications are rejected or need modification due to errors in testing procedures or data reporting.

This paper will address the data needed to list a product under each category and will clarify issues related to the Product Schedule. It will also address the policies that EPA uses to enforce the Subpart J regulation. The author has managed the Product Schedule for over three years and his experience and expertise regarding the issues surrounding alternative countermeasures will be covered as well. Dispersants, surface washing agents (SWA), chemical sorbents, and other technologies have sparked controversy and confusion in all regions and areas of the U.S., and in some cases internationally. Many research efforts have added to the baseline knowledge we have about dispersants and bioremediation agents— toxicity, efficacy, and proper use but conflicts still arise as that data is interpreted and applied in the field. The reader will have a better understanding of why and how alternative countermeasures are required to be listed and describe the authority to use them based on EPA policy.

## INTRODUCTION

Subpart J applies to navigable waters of the United States and adjoining shorelines, the waters of the

contiguous zone, and the high seas beyond the contiguous zone in connection with activities under the Outer Continental Shelf Lands Act, activities under the Deepwater Port Act of 1974, or activities that may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States, including resources under the Magnuson Fishery Conservation and Management Act of 1976. (40 CFR 300.900) The authority to use alternative countermeasures on oil spills is granted to the U.S. federal government within the NCP under section 300.910.

## WHY A PRODUCT SCHEDULE?

In 1967, the *Torrey Canyon* wrecked off the coast of England oiling many prime holiday beaches as 95,000 tons (593,750 barrels) of oil was released into the ocean. 10,000 tons (66,000 barrels) of chemicals were used to attempt to remove the oil from the impacted shorelines. These chemicals were actually degreasing agents containing over 60% aromatic solvents. Both the solvents and the surfactants were highly toxic to marine life. (API 1999) Kenneth Biglane, then the Director of EPA Oil and Special Materials Control Division flew to the spill and witnessed what can be described, and confirmed by many in the oil spill response community as severe misuse of chemical cleaning agents. He said that anyone who was able to carry hoses, back pumps, portable pumps etc...were pressed into service. He saw damage to the biota to the extent never before witnessed by him. Coastal hotels were approached by salesman and were encouraged to use these materials on their oil contaminated beaches much to their regret as they helped to cause erosion of those very beaches.

In June of 1968, President Johnson directed the Secretaries of Defense, Interior, and Transportation and the Director of the EPA Office of Science and Technology to assume special responsibilities to complete a multi-agency contingency plan in order to strengthen this Nation's preparedness to act in the event of an oil spill pollution emergency along our coast and waterways. Chemical dispersants were being highly touted by industry and each week DOT, DOD, and DOI were besieged by chemical salesmen, who wandered in off the street or were sent by Congressmen and showed up on-scene at most spills. Newspapers would report about a marvelous potion and spend many hours interviewing the few federal experts that knew about the compounds. EPA was not against the proper use of these chemicals, but hoped that situations such as the *Torrey Canyon* spill response would indeed become rare events.

In April of 1970, Congress passed the Federal Water Pollution Control Act which called for a National Contingency Plan (NCP), further Congress called for a schedule of chemical use on spills to be prepared. Mr. Biglane convened a task force at EPA with six state water pollution control administrators...the Product Schedule was born. (Biglane 1976). Today it is a fact that dispersants and some other chemical countermeasures are far less toxic than their predecessors, however EPA is still inundated at times with salespeople wanting to have EPA endorse or approve their products based on their low toxicity. EPA encourages the prudent and effective use of these products and directs manufacturers to follow the proper procedures within Subpart J of the NCP in order to have their products listed and, in turn, used properly.

## AUTHORITY FOR A PRODUCT SCHEDULE:

The use of dispersants, other chemical agents, and bioremediation agents to respond to oil spills in U.S. waters is governed by subpart J of the NCP (40 CFR 300.900). EPA's regulation, which is codified at 40 CFR 300.00, requires that EPA prepare a schedule of dispersants, other chemicals, and other spill mitigating devices and substances, if any, that may be used in carrying out the NCP. The Product Schedule (hereafter referred to as the Schedule) is required by section 311(d)(2)(G) of the Clean Water Act (CWA), as amended

by the Oil Pollution Act of 1990 (OPA). Under Subpart J, respondents wishing to add a product to the Schedule must submit technical product data specified in 40 CFR 300.915 to EPA. EPA places oil spill mitigating products on the Schedule if all the required data are submitted. The Schedule is available to Federal On-Scene Coordinators (OSCs), Regional Response Teams (RRTs), industry, states, oil spill response companies, hazardous materials response teams, and Area Committees for determining the most appropriate products to use in various spill scenarios. Products currently listed on the Schedule are divided into five basic categories: dispersants, surface washing agents, surface collecting agents, bioremediation agents, and miscellaneous oil spill control agents.

## INFORMATION REQUESTED FROM MANUFACTURERS:

Under subpart J, manufacturers who wish to list a product on the Schedule must report the items specified below for the appropriate category.

**Dispersants:** Means those chemical agents that emulsify, disperse, or solubilize oil into the water column or promote the surface spreading of oil in to the water column.

1. Name, brand, or trademark, if any, under which the dispersant is sold;
2. Name, address, and telephone number of the manufacturer, importer, or vendor;
3. Name, address, and telephone number of primary distributors or sales outlets;
4. Special handling information and worker precautions for storage and field application, including maximum and minimum storage temperatures;
5. Shelf life;
6. Recommended application procedures, concentrations, and conditions for use;
7. Results of the effectiveness test set forth in Appendix C of the NCP
8. Results of the toxicity test set forth in Appendix C of the NCP;
9. Physical properties covered by the American Society for Testing and Material—s reference standards;
10. Dispersing agent components;
11. The concentrations or upper ~~limits~~ of any heavy metals, cyanide, and chlorinated hydrocarbons; and
12. The identity of the laboratory that performed tests, the qualifications of the laboratory—s staff, and laboratory experience with similar tests.

Under NCP subpart J, respondents must test dispersant products for effectiveness and toxicity and provide the results to EPA's Oil Program Center. Dispersants are required to demonstrate a 50% (50%) effectiveness level in order to be placed on the Schedule. Only those dispersants that meet or exceed the effectiveness acceptability threshold are eligible to be listed on the Schedule and need be tested for toxicity. RRTs may require an additional swirling flask test using a type of oil other than that specified in Subpart J Appendix C (Alaska North Slope Crude and South Louisiana Crude). An RRT may require toxicity test using an invertebrate species other than that specified in Appendix C (Menidia beryllina and Mysidopsis bahia). This authority is not intended to make the preauthorization of certain technologies more difficult and does not authorize the RRTs to establish more stringent effectiveness and toxicity criteria, but will enable them to make more informed decisions by providing them with additional site or area specific data. Individual states, however, may require other tests and more stringent toxicity requirements. Although there is no toxicity threshold for dispersants, EPA feels that when making decisions on the use of dispersants, or any other product, spill responders should use the least harmful products that have been proven effective under the standardized laboratory conditions and actual field use. EPA explicitly reserves in the rule, the right to request additional documentation regarding both test and conduct verification testing of the effectiveness test results.

**Surface Washing Agents (SWAs)** : Any product that removes oil from solid surfaces, such as beaches and rocks, through a detergency mechanism and does not involve dispersing or solubilizing the oil into the water column.

1. Name, brand, or trademark, if any, under which the surface washing agent is sold;
2. Name, address, and telephone number of the manufacturer, importer, or vendor;
3. Name, address, and telephone number of primary distributors or sales outlets;
4. Special handling information and worker precautions for storage and field application, including maximum and minimum storage temperatures;
5. Shelf life;
6. Recommended application procedures, concentrations, and conditions for use;
7. Results of the toxicity test set forth in Appendix C of the NCP;
8. Physical properties covered by ASTM's reference standards;
9. Surface washing agent components;
10. The concentrations or upper limits of any heavy metals, cyanide, and chlorinated hydrocarbons; and
11. The identity of the laboratory that performed tests, the qualifications of the laboratory's staff, and laboratory experience with similar tests.

EPA will be conducting research on developing a test method and may specify an effectiveness protocol for surface washing agents. This category generates the most confusion due to SWAs action on removing oil from an impervious surface. SWAs are designed to break up and lift the oil allowing it to float on water and be collected for removal using sorbents, vacuum trucks, skimmers or other mechanical means. They are not supposed to emulsify or disperse the oil in any large degree, as this makes the recovery of the oil more difficult. Dispersants and SWAs are therefore opposite in action and purpose. However, EPA is concerned that these categories are often interchanged and this leads to misuse of the products. SWAs have been used on open water spills while dispersants have been used to wash oil from sandy beaches driving the oil deeper into the substrate. Both misuses may cause further harm to the environment than the oil alone. SWAs are not allowed to be washed away into or applied directly to a water body, but should always be recovered along with the oil as best as possible. As reported by state and federal authorities, all too often in the author's opinion, SWAs have been used to expedite cleanup with little concern for preventing the runoff from reaching waterways where they can cause fish kills and accumulate in storm drains possibly causing further explosion hazards. The exception being that fire departments may use a SWA to quickly dissipate fumes and fuel from a vehicle accident to prevent fire and explosion hazards. FOSCs may authorize their use to prevent harm to human life even if the product is not listed on the Schedule. EPA encourages recovery of the oil or gas in all cases.

**Surface Collecting Agents:** Means those chemical agents that form a surface film to control the layer thickness of oil.

1. Name, brand, or trademark, if any, under which the surface collecting agent is sold;
2. Name, address, and telephone number of the manufacturer, importer, or vendor;
3. Name, address, and telephone number of primary distributors or sales outlets;
4. Special handling information and worker precautions for storage and field application, including maximum and minimum storage temperatures;
5. Shelf life;
6. Recommended application procedures, concentrations, and conditions for use;
7. Results of the toxicity test set forth in Appendix C of the NCP;
8. Physical properties covered by ASTM's reference standards;
9. Test results distinguishing surface collecting agents from other chemical agents;
10. Surface collecting agent components;
11. The concentrations or upper limits of any heavy metals, cyanide, and chlorinated

hydrocarbons; and

12. The identity of the laboratory that performed tests, the qualifications of the laboratory—s staff, and laboratory experience with similar tests.

There are no surface collecting agents on the **list as** of June, 2001.

**Bioremediation Agents** : Means microbiological cultures, enzyme additives, or nutrient additives that are deliberately introduced into an oil discharge and that will significantly increase the rate of biodegradation to mitigate the effects of the discharge.

1. Name, brand, or trademark, if any, under which the bioremediation agent is sold;
2. Name, address, and telephone number of the manufacturer, importer, or vendor;
3. Name, address, and telephone number of primary distributors or sales outlets;
4. Special handling information and worker precautions for storage and field application, including **maximum** and **minimum** storage temperatures;
5. Shelf life;
6. Recommended application procedures, concentrations, and conditions for use;
7. Results of the effectiveness test set forth in Appendix C of the NCP;
8. For microbiological cultures, a listing of **all** microorganisms by species, including percentages, special nutrient requirements, etc.;
9. For enzyme additives, information on the enzyme, including source, operating conditions, shelf life, etc.;
10. The identity of the laboratory that performed tests, the qualifications of the laboratory—s staff, and laboratory experience with similar tests.

**Miscellaneous Oil Spill control Agents**: Is any product, other than those defined above that can enhance **oil** spill cleanup, removal, treatment, or mitigation. Examples of these agents are sorbents containing chemical or biological ingredients, elasticity modifiers, emulsion treating agents, and solidifiers.

1. Name, brand, or trademark, if any, under which the miscellaneous oil spill control agent is sold;
2. Name, address, and telephone number of the manufacturer, importer, or vendor;
3. Name, address, and telephone number of primary distributors or sales outlets;
4. Special handling information and worker precautions for storage and field application, including maximum and **minimum** storage temperatures;
5. Shelf life;
6. Recommended application procedures, concentrations, and conditions for use;
7. Results of the toxicity test set forth in Appendix C of the NCP;
8. Physical properties covered by ASTM\_s reference standards;
9. Miscellaneous oil spill control agent components;
10. The concentrations or upper **limits** of any heavy metals, cyanide, and chlorinated hydrocarbons;
11. Information on any microbiological cultures, enzyme additives, or nutrient additives; and
12. The identity of the laboratory that performed tests, the qualifications of the laboratory\_s staff, and laboratory experience with similar tests.

Due to the nature of this category EPA reserves the right to require further testing of products that do not meet strict definitions of defined product categories. Some products may qualify as a mixed product in which case the criteria to be listed may include combinations of the requirements listed above. However, note that the Miscellaneous category is not a catch-all for manufactures wishing to market a product they claim to perform all the actions described in other categories. An example being a SWA that also acts like a dispersant when used in a neat form or a bioremediation agent that also contains enough surfactant to disperse the oil into the water column. EPA reserves the right to closely examine the method of action for

every product and makes corrections to manufacturer application language when necessary. Some latitude may be granted, but it is important for the integrity of the Schedule and its usefulness to the oil spill community that manufacturers not market a product as a comprehensive one-size-fits-all agent able to perform any oil spill related task.

Under subpart J, the respondent must also notify EPA of any changes in the composition, formulation, or application of the dispersant, surface washing agent, surface collecting agent, bioremediation agent, or miscellaneous oil spill control agent. If the change is likely to alter the effectiveness or toxicity of the product, EPA may require retesting. If EPA decides that retesting is necessary, the submitter must have the product tested in a laboratory and forward the data, along with the qualifications of the laboratory staff, to EPA.

Sorbents: Means essentially inert and insoluble materials that are used to remove oil and hazardous substances from water through adsorption, in which the oil or hazardous substance is attracted to the sorbent surface and then adheres to it; absorption, in which the oil or hazardous substance penetrates the pores of the sorbent material; or a combination of the two. Sorbents are generally manufactured in particulate form for spreading over an oil slick or as sheets, rolls, pillows, or booms. Sorbents are not required to be listed under the NCP Product Schedule. However sorbents that contain chemical or biological components, especially when made in loose form, may be required to be listed. Manufacturers that produce sorbent materials that consist of materials other than those listed in paragraph (g)(1) of 300.915 shall submit to EPA the technical product data specified for miscellaneous agents. Materials listed under (g)(1) include organic materials such as peat moss and bird feathers, mineral compounds including volcanic ash and vermiculite, and synthetics such as polypropylene and polyester.

If EPA determines the sorbent may cause a deleterious effect on the environment, the product needs to be listed under the Miscellaneous category. Examples of sorbents that are required to be on the Schedule include loose cellulose materials that contain non-indigenous microbes, chemical solidifiers, or any other product that does not meet the definition of sorbents as stated in 300.915 (g). EPA is aware that the 1994 Subpart J list of sorbent materials is dated and does allow for broader interpretation of what a sorbent material is. An example is the recent development in using human hair as a sorbent.

## AGENCY ACTIVITIES:

Under subpart J, EPA will perform activities when a manufacturer applies to have a product listed on the Product Schedule. Once the technical product data required by the rule are submitted, EPA must perform the following activities:

- C Receive and process the data;
- C Review the data for completeness and procedural accuracy;
- C Notify the respondent of the decision on listing the product on the Schedule; and
- C If approved, place the product on the Schedule, store the data, and supply the data upon request.

EPA's decision to place a product on the Schedule is based on the completeness of the information presented, however the product will be evaluated for its effects on water quality as prescribed in the Clean Water Act section 311. EPA reserves the right to request further documentation of a lab's test results. EPA also reserves the right to verify test results and consider those results in determining whether a product meets listing criteria. EPA has 60 days to notify the manufacturer of its decision to list a product on the Schedule, or request additional information, and/or a sample of the product in order to review and/or conduct validation sampling.

## **PRACTICAL UTILITY OF THE DATA:**

If all of the required data are submitted, EPA places oil spill mitigating products on the Schedule. The Schedule is available for use by OSCs, RRTs, and Area Committees in determining the most appropriate products to use in various spill scenarios. Under 40 CFR 300.910(a), RRTs and Area Committees are required to address the desirability of using the products on the Schedule in their Regional Contingency Plans and Area Contingency Plans, respectively. The required information is needed from the respondent so that the OSCs, RRTs, and Area Committees can make informed decisions to safely employ chemical countermeasures to control oil discharges. Correct product use is critical in emergency situations. While RRTs and area committees along with the FOSCs make the decisions to use or not use alternative methods, there are certain guidelines and national policies that apply. EPA's policy that draws some attention and controversy, is that freshwater use of dispersants is not authorized for waters of the U.S. Shallow water use is also discouraged. This policy is in agreement with the National Academy of Sciences and other research efforts. There are exceptions but due to the nature of dispersants, the environmental conditions, and the requirements to use them effectively, EPA will not allow general or preauthorized use of dispersants in the inland waters of the U.S.

## **AUTHORITY FOR USE:**

Section 311(d)(2)(G) of the CWA, as amended by the OPA, requires that the NCP include a schedule identifying –dispersants, other chemicals, and other spill mitigating devices and substances, if any, that may be used in carrying out the NCP. The authority of the President to implement the CWA is currently delegated to EPA by Executive Order 12777 (56 FR 54757, October 18, 1991).

The Schedule is available for use by OSCs, RRTs, and Area Committees in determining the most appropriate products to use in various spill scenarios. For spill situations that are not addressed by the preauthorization plans, FOSCs, with the concurrence of the EPA representative to the RRT and, as appropriate, the concurrence of RRT representatives from the states with jurisdiction over the navigable waters threatened by the spill, and in consultation with the Department of Commerce (National Oceanic and Atmospheric Administration, NOAA), and the Department of the Interior (DOI) natural resource trustees, when practicable, may authorize the use of chemical and or biological agents on the oil. State environmental agencies and the responsible party may also be consulted.

## **FEDERAL AGENCIES- ROLE WITHIN THE RRT:**

EPA provides the FOSC for inland spills with every coastal region establishing its jurisdictional boundaries with the local Coast Guard Marine Safety Offices. As per 40 CFR Section 300.120, the United States Coast Guard (CG) is the predesignated FOSC, and has the overall responsibility for oil spill response management in the coastal zone and for incidents under its jurisdiction, including alternative countermeasure activity. The CG, in conjunction with the RRT, will be directly involved in a dispersant application and use of any listed products, and may be responsible for assigning tasks to each participating agency during the response. EPA, with its expertise, may act as a technical advisor to the FOSC. This includes advising the FOSC on the ability of a particular bioremediation agent to degrade oil in the environment safely and at a rate that is significantly higher than the natural rate of oil degradation for example.

NOAA maintains extensive information on Ocean and atmospheric conditions. This information can be used to assist in the selection of a particular countermeasure technology. NOAA has both a biological assessment team and support contractors, who understand how products may be used in conjunction with more conventional clean up strategies.

DOI manages certain areas of the U.S. coastline and most federal inland areas. During a response and during planning stages the Fish and Wildlife Service provides consultation for Endangered Species protection for any spill within the areas managed by DOI response activities. DOI federal land managers are

consulted by the FOSC regarding response actions which are compatible with the management philosophy for the area. The use of any products may possibly conflict with the land management objectives of the DOI agencies. (Caribbean RRT Bioremediation Spill Response Plan 1995)

## **DOES LISTING MEAN EPA APPROVES AND ENDORSES A PRODUCT ?**

No. The listing of a product on the Schedule does not constitute approval of the product. To avoid possible misinterpretation or misrepresentation, any label, advertisement, or technical literature that refers to the placement of the product on the NCP Product Schedule must either reproduce in its entirety **EPA** written statement that it will assist the product to the Schedule under 40 CFR 300.920(a)(2) or include the disclaimer shown below. Failure to comply with these restrictions or any other improper attempt to demonstrate the approval of the product by any NRT or other U.S. Government agency shall constitute grounds for removing the product from the Schedule.

**Disclaimer:** [PRODUCTNAME] is on the U.S. Environmental Protection Agency's NCP Product Schedule. This listing does NOT mean that EPA approves, recommends, licenses, certifies, or authorizes the use of [PRODUCTNAME] on an oil discharge. The listing means only that data have been submitted to EPA as required by Subpart J of the National Contingency Plan, 300.915 EPA makes no claim that any of the listed products work exactly as they are supposed to. At the present time the only threshold that must be met is for the Swirling Flask Test and the Bioremediation 28-Day Effectiveness Test.

## **CONCLUSIONS:**

### **Proper uses and lessons learned:**

EPA encourages industry, FOSCs, state and local agencies, Oil Spill Response Organizations, fire departments and the entire oil spill community to share their experiences with us and each other. FOSCs play a vital role in deciding when to use a product by their participation on the RRT. RRT representatives may be called on to concur with in-situ burning, chemical and biological countermeasures for marine and inland spills more often. Share your experiences with the U.S. National Response Team who in turn can evaluate and distribute this information for all. Only through open and honest communication and sharing of these lessons learned can we all better understand the appropriate uses and limitations of alternative countermeasures such as chemical and biological agents listed on the NCP Product Schedule. In the near future, EPA will be proposing changes and improvements to Subpart J and the product listing process. We welcome diverse participation in this process which will be announced in the Federal Register.

### **Whom can one contact for more information about listing products on the NCP Product Schedule?**

EPA's NCP Information Line at (202) 260-2342, or by writing to:  
U.S. Environmental Protection Agency  
Oil Program- Center (5203G)  
1200 Pennsylvania Ave.  
Washington, DC 20460

Packages should be sent to:

Nick Nichols (5203G)  
U.S. EPA Crystal Gateway #1  
1235 Jefferson Davis Hwy 12<sup>th</sup> floor  
Arlington, VA 22202

## References:

- American Petroleum Institute: A Decision Maker's Guide To Dispersants, A Review of the Theory and Operational Requirements; Health and Environmental Sciences Department, Publication Number 4692; Washington D.C. March 1999.
- Biglane, Kenneth: Director Oil and Special Materials Control Division, Memo to the EPA Record Subject: Oil Spill Dispersant Chemicals; Washington D.C. 1976.
- Caribbean Regional Response Team: Bioremediation Spill Response Plan, Response Technology Committee, Bioremediation Subcommittee Region II EPA, September 1995.
- United States Environmental Protection Agency, 40 Code of Federal Regulations Part 300, National Oil and Hazardous Substances Pollution Contingency Plan: Final Rule, Federal Register, Washington D.C. September 1994.

## Bibliography:

- Moore, Gary and Thomas, Gail: The Use of Chemical Countermeasures on Fuel Spills That Threaten Our Water, National Fire Protection Association Journal, pgs.7478; March/April 1999.
- U.S. Congress Office of Technology Assessment, 1991. Bioremediation of marine oil spills background paper. OTA-BP-0-70. U.S. Government Printing Office, Washington, D.C.
- Venosa, A. D., J. R. Haines, and D. M. Allen, 1992. Efficacy of commercial inocula in enhancing biodegradation of weathered crude oil contaminating a Prince William Sound beach. *Journal of Industrial Microbiology*, v10, pp1\_11
- Venosa, A. D., M. T. Suidan, B. A. Wrenn, et al., 1996. Bioremediation of an experimental oil spill on the shoreline of Delaware Bay. *Environmental Science and Technology*, v30, n5, pp 1764-1775.
- Wrenn, B. A., M. T. Suidan, K. L. Strohmeier, B. L. Eberhart, G. J. Wilson, and A. D. Venosa, 1997. Nutrient transport during bioremediation of contaminated beaches: Evaluation with lithium as a conservative tracer. *Water Research* (in press)